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PIC/JR-1019/61
May 1961

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JOINT PHOTOGRAPHIC INTELLIGENCE REPORT

ELECTRONIC INSTALLATIONS TASHKENT, USSR



ARMY



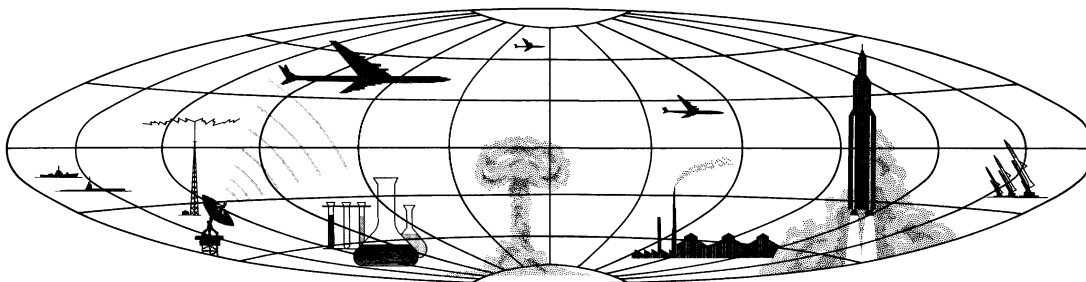
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PREFACE

This joint photographic intelligence report has been prepared by the Army, Navy, and Central Intelligence Agency in response to requirements on electronic installations in Tashkent, USSR. Information based on an analysis of [] aerial photography has been supplemented by data from collateral sources covering the period 1953 to 1958.

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INTRODUCTION

This report presents a photographic analysis of 16 electronic installations in Tashkent and vicinity identified from photography of [REDACTED] Tashkent is located at 41-18N 69-16E, 1,770 miles southeast of Moscow. It lies on an alluvial fan between the Tyan Shan mountains to the east and the Syr Darya River Valley to the west.

Also included in the report are brief descriptions of eight installations reported by collateral sources but not identified on the photography. On the detailed location map, Figure 2, the identified installations are numbered from 1 through 16 and those reported are lettered from A through H. The term "miles" in this report means "nautical miles."

SUMMARY

The 16 electronic installations identified on photography range from a local broadcasting station (No. 10) containing one tower, to a large receiver station (No. 2) containing over 300 stick masts. The installations have various types of electronic equipment and perform various functions, including point-to-point, microwave, and airfield communications; radio broadcasting; and aircraft navigational aid.

Two installations, Nos. 2 and 7, are particularly interesting. Installation No. 2, a high-frequency receiver station, contains an unusually large number of receiving antennas, 16 fishbones and 9 rhombics (plus one rhombic under construction). Within Installation No. 7, a station was under construction at the time of photography containing 12 self-supporting towers ranging in height from 170 to 385 feet. This station appears to have the same function, that of high-

frequency broadcasting, as installations near Sverdlovsk, Alma-Ata, Novosibirsk, Komsomolsk, Stalinabad, and Tbilisi. 1/ The apparently recent construction of some of these installations indicates an effort by the USSR to expand its high-frequency broadcasting facilities.

To determine possible communication links between Tashkent and other cities, a line was projected from Tashkent on the azimuthal orientation of each rhombic and fishbone antenna. These lines pass over the Soviet cities of Moscow, Baku, Irkutsk, Chita, Kuybyshev, Tbilisi, Kerch, Sevastopol, Gorkiy, and Magadan, and over Kabul, in Afghanistan. Such extensive possible communication links, together with the number, size, and complexity of its communication facilities, make Tashkent one of the major communication centers in the USSR, and probably the chief communication center in Central Asia.



FIGURE 1. GENERAL LOCATION MAP.

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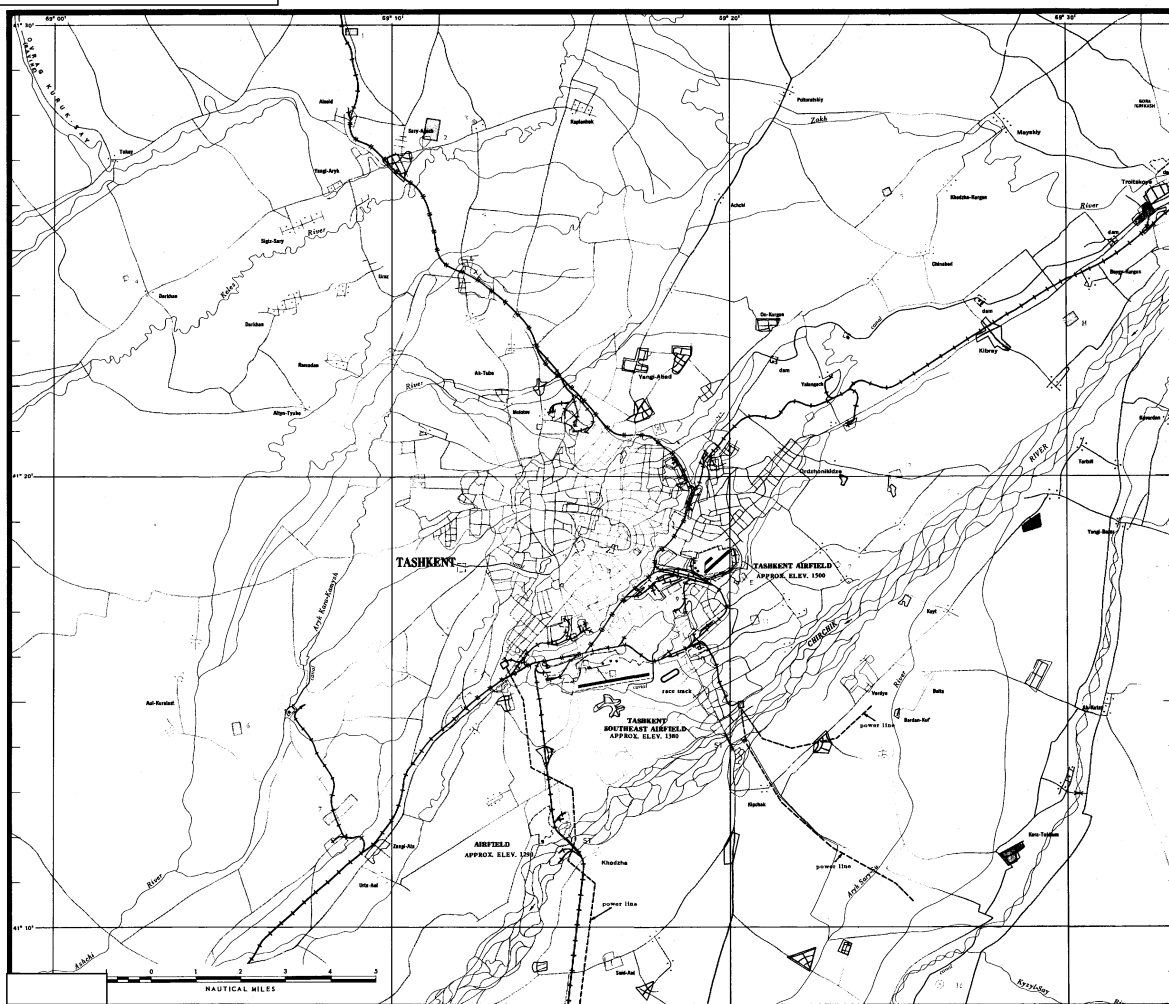


FIGURE 2. DETAILED LOCATION MAP OF THE TASHKENT AREA. The identified installations are numbered from 1 through 16 and the reported installations are lettered from A through H.

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IDENTIFIED INSTALLATIONS

1. TRANSMITTER STATION

A transmitter station is located at 41-29-50N 69-08-45E, 3 miles north-northwest of Sary Agach, 300 feet east of the Tashkent-Arys railroad, and 14.5 miles northwest of Tashkent (see Figure 3). The station is enclosed by a fence 2,050 by 1,275 feet, covers approximately 60 acres, and is served by an all-weather road. It contains four double rhombic antennas, a transmitter building, and several support-type buildings.

Antennas

The four double rhombics are arranged in two pairs. The presence of dissipation lines indicates that these are transmitting rhombics. One antenna of each pair (Figure 3, items 2 and 3) is for day and the other antenna (items 1 and 4) for night transmission. One pair (items 1 and 2) transmits toward Moscow (315°49') and the other pair (items 3 and 4) toward Khabarovsk (57°39'). Data on these rhombics is given in Table 1 (antenna numbers are keyed to Figure 3).

Structures

The transmitter building (Figure 3,

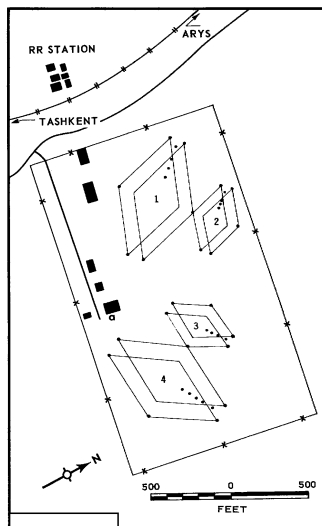


FIGURE 3. INSTALLATION 1. This transmitter station is located 3 miles NNW of Sary Agach.

item a), 85 by 35 feet, is located near the south fence. Five support-type buildings, the largest of which is 105 by 45 feet, are also located in the fenced area.

2. RECEIVER STATION

A high-frequency receiver station is located at 41-27-45N 69-11-15E, 4,000 feet northeast of Sary Agach and 11.5 miles north-northwest of Tashkent (see Figure 4). The station covers more than 330 acres and contains numerous stick masts which support fishbone and double-rhombic antennas, a fenced control area, and a support area. Some of the fishbones and rhombics are oriented on approximately the same azimuth and separated from each other both horizontally and vertically. This indicates that space diversity reception may be utilized.

Antennas

At least 343 stick masts, supporting 9 double rhombic and 16 fishbone antennas, have been identified within the station area. For one fishbone (Figure 4, item g), only some of the supporting stick masts can be identified, but it has been assumed that there are additional stick masts. The

photography shows excavations prepared for a tenth double rhombic (item 10) to be constructed. Feed lines radiate from several of the antennas toward the control area. Data on the double rhombics is given in Table 2 (antenna numbers are keyed to Figure 4).

Data on the fishbone antennas is given in Table 3. The antenna letters are keyed to Figure 4 and the type letters to Figure 5. All masts are approximately [redacted] high. The designations of these antennas are in accordance with the system established in PIC/TP-3/61, Designation of Fishbone Antenna Configurations, [redacted]

[redacted] 2/

Structures

The control area, located in the middle of the installation, contains a T-shaped receiver building, bar 195 by 50 feet with stem 75 by 50 feet and [redacted], and two other buildings, one [redacted] and the other [redacted] and 20 feet high. Adjacent to the control area is

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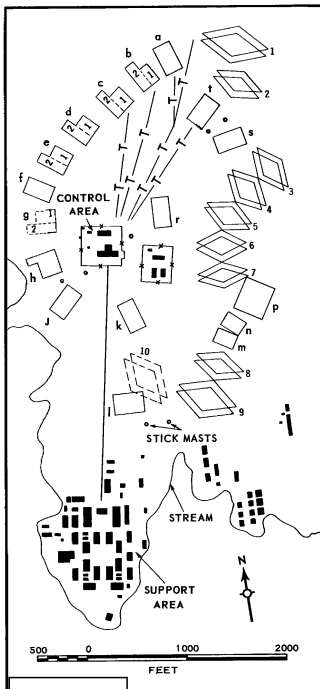


FIGURE 4. INSTALLATION 2. This installation is a high frequency receiver station located 4,000 feet NE of Sary Agach.

a fenced area containing four buildings, three of which measure [redacted] and 10 feet high.

The support area, located in the southern part of the installation, contains about 70 buildings varying in size from a single-story building about 20 by 15 feet to a multistory building 195 by 65 feet. The buildings in this area probably include both administrative buildings and barracks.

3. DIRECTION-FINDING STATION

A Fix Four or Fix Six high-frequency direction-finding station is at 41-27-50N 69-12-25E, 1.75 miles northeast of Sary Agach. It contains four or possibly six stick masts arranged in a 90-foot-diameter circle around a centrally located building and is surrounded by a circular wall or fence.

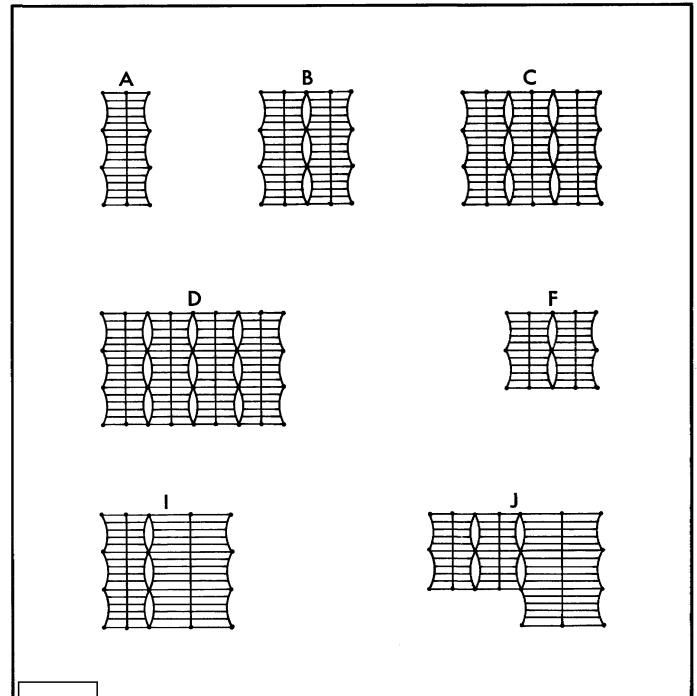


FIGURE 5. DESIGNATION OF FISHBONE ANTENNA CONFIGURATIONS USED IN THIS REPORT. The designations of these antennas are in accordance with the system established in PIC/TP-3/61.

4. POSSIBLE MICROWAVE TOWER

A possible microwave tower is located at 41-24-25N 69-02-10E near the village of Darkhan, 7.5 miles southwest of Sary Agach and 14 miles west-northwest of Tashkent. The tower is situated on the crest of a small mound. The combined height of the tower and the mound is 125 feet.

5. RECEIVER STATION

A receiver station is located at 41-26-17N 69-24-40E, 1.5 miles west of Khodzha Kurgan and 11 miles northeast of Tashkent (see Figure 6). The station is enclosed by a fence, covers approximately 200 acres, and is road-served. It includes an operations area containing a receiver building 115 by 85 feet and

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numerous stick masts, and a support area containing at least 20 buildings.

Feed lines and numerous stick masts and stick-mast bases are noted within the operations area, but owing to the poor resolution of the photography only one antenna pattern can be positively identified. However, the existence of the feed lines and masts indicates the presence of other antennas. The identified antenna is a Type I fishbone array, which has two bays. One bay (Figure 6, item a) is designed for day and the other (item b) for night reception.

Data on the antenna bays is given in Table 4 (bay letters are keyed to Figure 6 and the type to Figure 5).

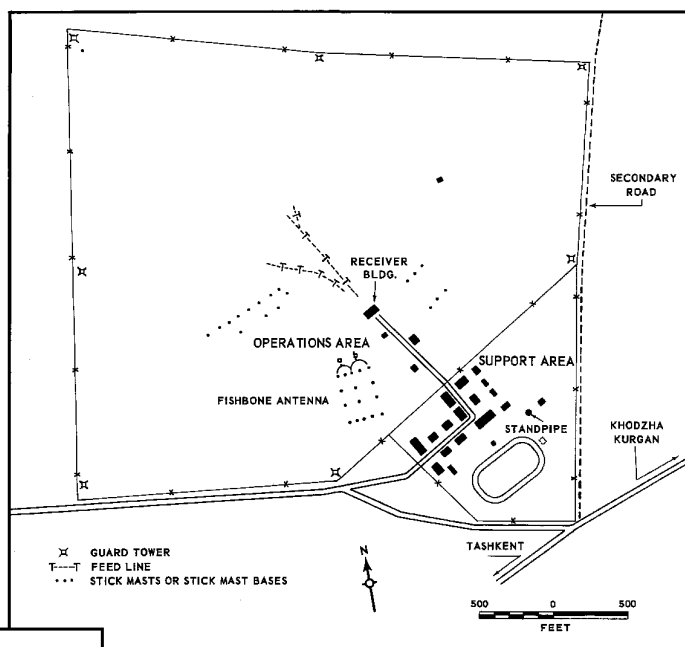


FIGURE 6. INSTALLATION 5. This receiver station is located 11 miles NE of Tashkent.

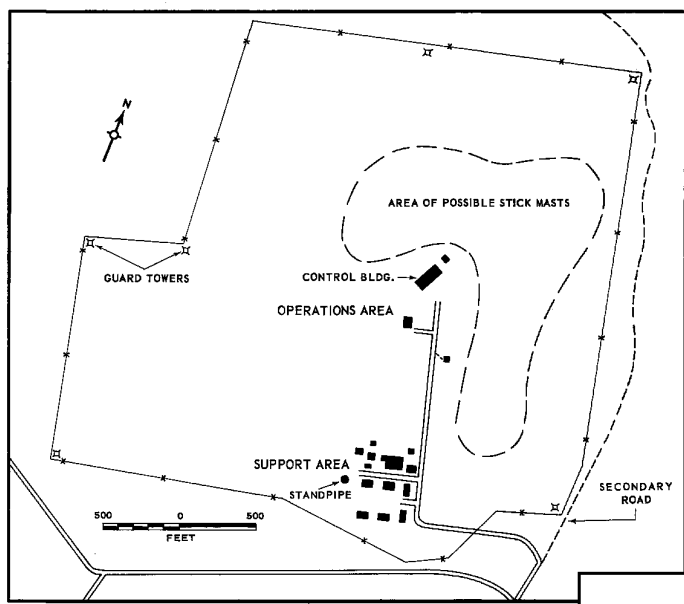


FIGURE 7. INSTALLATION 6. A probable communication station located 4 miles NW of the Tashkent-Samarkand railroad.

6. PROBABLE COMMUNICATION STATION

A probable communication station is located at 41-14-20N 69-05-25E, 4 miles northwest of the Tashkent-Samarkand railroad (see Figure 7). Owing to the very poor resolution of the photography, only a limited photographic interpretation is possible. The probable station is road-served, occupies a fenced area of approximately 210 acres with at least six guard towers, and is composed of an operations area and a support area. The operations area contains a gable-roofed control building approximately 150 by 75

feet, three smaller buildings, and an area of ground scarring that may indicate the presence of stick masts. Although no specific antenna patterns can be identified the pattern of ground scars suggests the presence of fishbone-type antennas. The support area contains 18 buildings and a standpipe.

7. BROADCASTING INSTALLATION

A broadcasting installation is located at 41-12-28N 69-08-25E, 8 miles southwest of the center of Tashkent and one mile northwest of the 1,847 kilometer

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marker on the Tashkent-Samarkand railroad (see Figure 8). It consists of a local broadcasting station, a high-frequency broadcasting station under construction, a housing and support area, and a possibly associated unidentified facility.

Local Broadcasting Station

This station, covering an area 1,800 by 1,600 feet, includes two guyed sectional vertical radiators, a transmitter building, two cooling ponds, two tuning/coupling houses, and other, unidentified, buildings.

Antennas: The outstanding features of this station are the two guyed sectional vertical radiators, which are approxi-

mately 700 feet high and 1,150 feet apart. These are probably the two 650-foot-high guyed straight lattice-type masts which a

Structures: The transmitter building and the two cooling ponds are located about 1,000 feet from the vertical radiators. At

the base of each radiator is a tuning/coupling house, 35 by 25 feet (not shown on Figure 8). Eight other buildings, five of which are located between the radiators, are noted, but their function cannot be determined.

High-Frequency Broadcasting Station Under Construction

This station is under construction in an area 5,200 by 3,100 feet. At the time of photography the area contained 14 self-supporting lattice towers; 5 bases, 2 of which were under construction; 2 transmitter buildings, one of which was under construction; and 2 buildings of undetermined function.

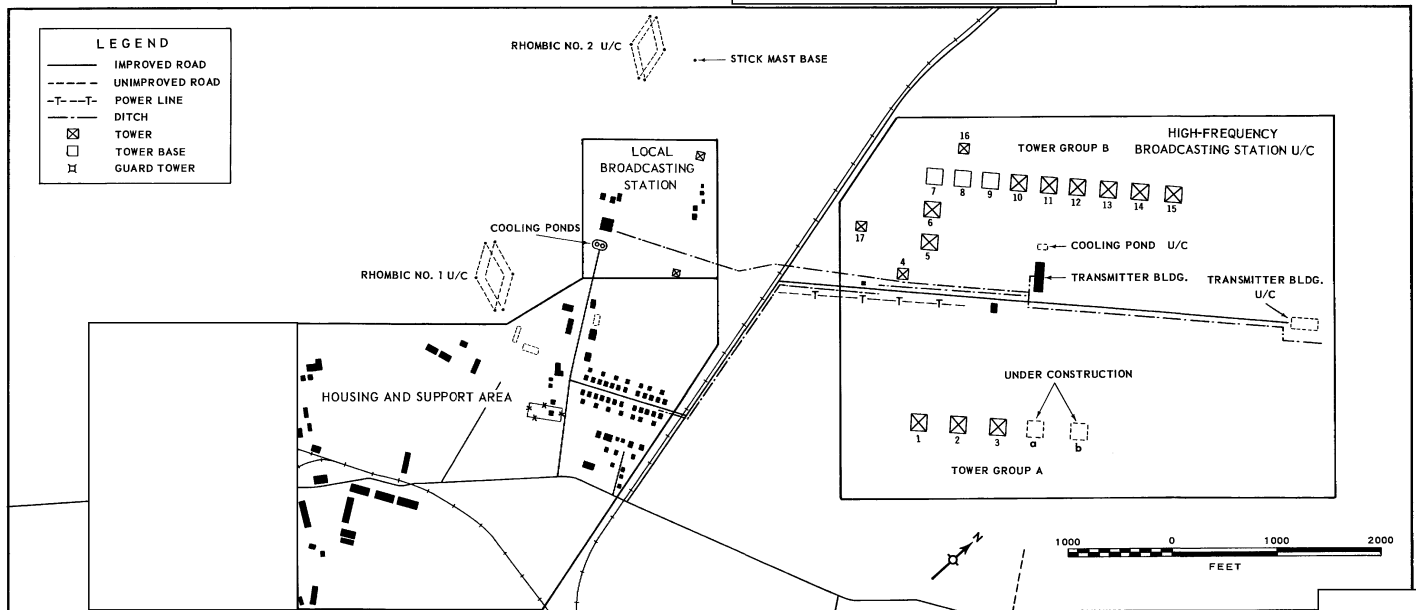


FIGURE 8. INSTALLATION 7. This broadcasting installation is located 8 miles SW of Tashkent.

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An all-weather road leads through the center of the station. An overhead power line and two ditches parallel this road. A spur line from the Tashkent-Samarkand railroad passes the southwest portion of the station but has no apparent connection with the station.

Antennas: As seen on the [] photography, the arrangement of antennas is as follows: Generally, the 14 self-supporting lattice towers and 5 bases are in two groups, referred to here as Tower Group A and Tower Group B. In Tower Group A are three 385-foot-high towers and two bases under construction, positioned in a straight line (Figure 8, items 1, 2, 3, a, and b). Tower Group B contains nine towers from 170 to 230 feet high and three tower bases forming an "L" configuration (items 4 through 15). Two other towers (items 16 and 17), 50 feet high, are located near Group B, but neither is apparently a functional part of this group.

In Group A the bases of the three towers and the two bases under construction are 40 feet square. On the top of each tower is a 40-foot horizontal crossarm, and at least four other horizontal crossarms are positioned along the vertical axis of each tower. The location of these crossarms indicates that broadside curtain antennas were or were to be suspended between the towers. After the time of photography, [] the bases under construction were completed and a tower was erected on each. On [] this station a group of five 325- to 500-foot-high tapered lattice towers arranged in a straight line and connected by two wire antennas. 1/ The presence of the wire antennas supports the

indication of the use of curtain antennas. Data on Tower Group A as of [] is given in Table 5 (tower numbers are keyed to Figure 8).

In Tower Group B, the three bases and the bases of the nine towers are 25 feet square. A horizontal crossarm is located on the top of each tower and lower horizontal crossarms are spaced along its vertical axis. As in Tower Group A, these crossarms indicate that broadside curtain antennas were or were to be suspended between the towers. []

1/, the station had a group of 12 tapered lattice towers 130 to 160 feet high. This indicates that after the time of photography a tower was erected on each of the three tower bases. Data on Tower Group B is given in Table 6 (tower numbers are keyed to Figure 8).

Structures: The two transmitter buildings, one 235 by 75 feet and one (under construction) 275 by 75 feet, are located midway between Tower Groups A and B. These buildings are separated by approximately 2,000 feet. A cooling pond is under construction adjacent to one of the buildings. Also within the area are two other buildings, 45 by 35 feet and 30 by 20 feet.

Rhombic Antennas Under Construction

The two double rhombic antennas under construction (Figure 8, rhombics

No. 1 and No. 2) are in the west central portion of the over-all installation. A base for one stick mast is located 315 feet from the east side pole of rhombic No. 2, indicating that the mast may be part of a third rhombic to be constructed. It cannot be determined whether the stick masts for rhombics No. 1 and No. 2 have been erected. No feed or dissipation lines can be identified. Data on these rhombics is given in Table 7. No height measurements can be determined.

Housing and Support Area

The housing and support area, occupying approximately 140 acres and adjacent to and south of the local broadcasting station, contains at least 80 completed buildings and other buildings under construction. It is served by an all-weather road from Tashkent, and a spur from the Tashkent-Samarkand railroad passes through its south portion.

8. TASHKENT SOUTHEAST AIRFIELD INSTRUMENTATION AND COMMUNICATION FACILITIES

Electronic facilities at Tashkent Southeast Airfield, which is located at 41-15N 69-15E, 3.2 miles south-southwest of the center of Tashkent, include the following: On the east side of the runway, at 41-15-38N 69-16-31E, is a GCA

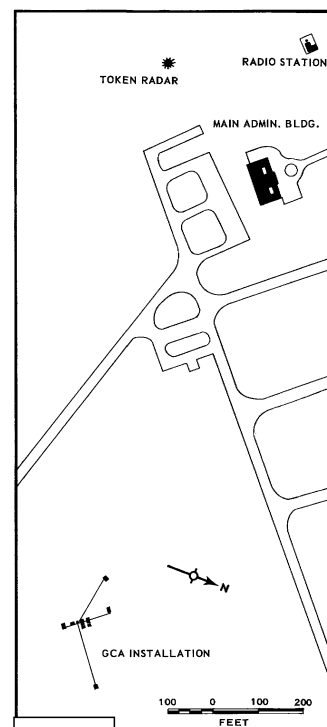


FIGURE 9. INSTALLATION 8, Tashkent Southeast Airfield instrumentation and communication facilities.

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(Ground Control Approach) installation; a Token radar is positioned on a mound of earth at 41-15-35N 69-15-45E, approximately 875 feet southwest of the main administration building; and a radio station with a 135-foot mast is located at 41-15-55N 69-15-45E, approximately 800 feet west of the main administration building (see Figure 9).

The GCA installation consists of a Home Talk approach radar, a Long Eye radar, a Cross Fork radar, a Small Cross HF/DF antenna, and several VHF Disc Cone antennas. This installation fits the description of the GCA reported to be located at this airfield. 4/

According to collateral, the control tower on top of the administration building has a standard VHF antenna, two VHF antennas of the Disc Cone type, and one probable FM antenna on a 15-foot mast. 5/ Also, there are reported to be three possible direction-finding stations, two resembling a Fix Four and one resembling a Fix Six, adjacent to the east boundary of the airfield and just north of the east/west runway. 6/ However, no Fix Fours or Fix Sixes can be identified on photography.

9. TRANSMITTER STATION

A transmitter station covering an area 3,000 by 1,500 feet is located at 41-17-30N 69-18-20E in the southeast portion of Tashkent. It contains two self-supporting lattice towers, two stick masts, a transmitter building with associated cooling ponds, and several other buildings (see Figure 10). This station is referred to in a collateral report as the main Tashkent civil/military radio station. 7/

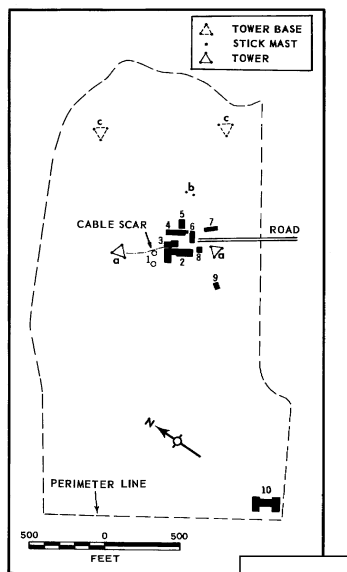


FIGURE 10. INSTALLATION 9. This transmitter station is located in the southeast portion of Tashkent.

Antennas

The two self-supporting lattice towers (Figure 10, items a), 310 feet high and 660 feet apart, are located in the vicinity of the transmitter building (item 2). A cable scar leads from a possible tuning/coupling house (item 3) to one tower. Collateral reports state that there are two to four caged doublets strung between these two lattice towers. 4/ 6/ Because of the scale of the photography, the existence of these horizontal wires cannot be confirmed. A perpendicular to a line projected between these two towers has an azimuth of []

Collateral information dated 1958 reports two steel frame masts estimated to

be 150 feet high and 100 feet apart with three antenna wires strung between them. 6/ These masts cannot be identified on the photography.

Two stick masts (items b), each approximately 40 feet high and 165 feet apart, are located 300 feet east of the transmitter building. A perpendicular to a line projected between these two masts has an azimuth of 090°/270°. A collateral report dated 1957 states the existence of 30 stick masts 75 to 100 feet high 5/, but only the two stick masts mentioned above can be identified on photography.

In the northeast portion of the installation are two concrete bases 800 feet apart (items c) for self-supporting towers. Collateral information of 1953 reports this station to contain four self-supporting lattice towers. 8/ These two bases are all that remain of two of the four towers reported. The other two towers (items a) have been discussed above.

Structures

The following is an enumeration of the structures at the installation (numbers are keyed to Figure 10).

1. Two cooling ponds, each 35 feet in diameter.
2. "L"-shaped transmitter building, 165 feet long with a 40-foot-square extension.
3. Possible gable-roofed tuning/coupling house, 60 by 45 feet with an attached section 30 feet square.
4. Flat-roofed building, 120 by 25 feet.
5. Gable-roofed building, 85 by 25 feet.
6. Gable-roofed building, 55 by 25 feet.
7. Flat-roofed building, 70 by 15 feet.

8. Cable-roofed building, 35 by 30 feet.
9. Cable-roofed building, 40 by 25 feet.
10. Multistory "U"-shaped building, center section 80 by 35 feet, two wings each 100 by 50 feet.

10. TRANSMITTER STATION

A transmitter station is located at 41-16-10N 69-19-05E, 1.8 miles south of Tashkent Airfield and just east of a partially completed housing area (see Figure 11). The station, which is road-served, includes a lattice tower, a transmitter building, and a support area containing 11 buildings and one building foundation.

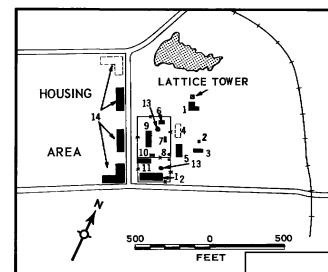


FIGURE 11. INSTALLATION 10. The location of this transmitter station is 1.8 miles south of Tashkent Airfield.

Eight of the buildings in the support area are enclosed by a fence. Extensive track activity at the time of photography suggests that additional construction was in progress. The housing area measures 1,700 by 860 feet.

Antennas

The lattice tower is 170 feet high and probably guyed.

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Structures

The following are brief descriptions of the structures in the station and in the housing area (item numbers are keyed to Figure 11).

1. Transmitter building 50 feet square with an attached probable cooling tower 25 feet square.
2. Gable-roofed building, [] feet.
3. Gable-roofed building, 55 by 20 feet.
4. Building foundation, 85 by 35 feet.
5. Multistory hip-roofed building, 90 by 40 feet.
6. Flat-roofed building, [] feet.
7. Flat-roofed building, 40 by 20 feet.
8. Two buildings, each 15 by 10 feet.
9. Multistory hip-roofed building, 95 by 45 feet.
10. Gable-roofed building, 50 by 15 feet.
11. Flat-roofed building, 90 by 35 feet.
12. Multistory hip-roofed building, 140 by 45 feet.
13. Two circular emplacements, []
14. Thirteen 140- by 45-foot completed multistory hip-roofed buildings (not all shown on figure) and others under construction.

11. COMMUNICATION STATION

A communication station is located at 41-16-50N 69-20-45E, about 7,000 feet southeast of Tashkent Airfield and 7,500 feet northwest of the Chirchik River (see

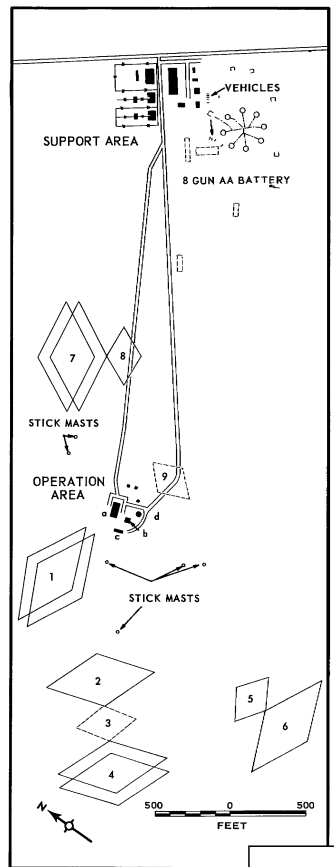


FIGURE 12. INSTALLATION 11. This installation is a communication station located approx. 7,000 feet SE of Tashkent Airfield.

Figure 12). The ground elevation at this point is less than 1,500 feet. The station, which is road-served, covers approxi-

ately 140 acres and consists of an operations area which includes a control building and at least 44 stick masts, and a support area which includes an occupied, radar-controlled eight-gun AA battery.

Antennas

Of the 44 stick masts identified, 38 form 3 double rhombics (Figure 12, items 1, 4, and 7), 4 single rhombics (items 2, 5, 6, and 8), and 2 probable single rhombics (items 3 and 9). Additional antennas may be present, but the resolution of the photography precludes their identification. Data on the nine rhombics is given in Table 8 (antenna numbers are keyed to Figure 12). Not all mast heights can be determined.

Structures

The following is an enumeration of the

structures in the operations area (letters are keyed to Figure 12).

- a. Control building, 95 by 45 feet and 35 feet high.
- b. Building, [] feet high.
- c. Building, [] 10 feet high.
- d. Buried tank, 25 feet in diameter.

12. POSSIBLE MICROWAVE TOWER

A self-supporting lattice tower approximately 80 feet high is situated on top of a circular mound at 41-18-00N 69-23-15E, 5 miles east of Tashkent and one mile northwest of the Chirchik River. This tower may support microwave equipment and may be part of the known Tashkent-Alma-Ata microwave link.

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13. PROBABLE COMMUNICATION STATION

A probable communication station is located at 41-20-00N 69-25-00E, 5.5 miles east-northeast of the center of Tashkent and on the north side of a road leading southeast from Ordzhonikidze (see Figure 13). It consists of a probable operations area which contains probable stick masts, and a probable support area. The station area is served by a 50-foot-wide concrete road.

Antennas

Five probable stick masts, arranged 40 to 50 feet apart in a straight line, are located approximately 800 feet west of a probable control building. Ground scars in the vicinity of the probable masts indicate the existence of other stick masts.

Structures

An enumeration of the structures in the station area follows (numbers are keyed to Figure 13).

In the probable operations area:

1. Gable-roofed probable control building, 105 by 40 feet.
2. Flat-roofed building, 25 feet square.
3. Gable-roofed building, 30 by 20 feet.
4. Gable-roofed building, 30 by 25 feet.

In the probable support area:

5. Hip-roofed building, 40 feet square, with side shed.
6. Two buildings (one under construction) each 25 by 15 feet.
7. Possible tank, 20 feet in diameter.
8. Gable-roofed building, 30 by 20 feet.

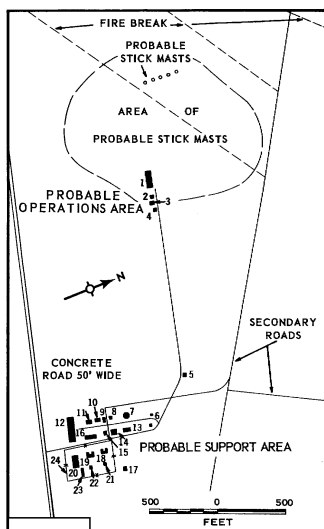


FIGURE 13. INSTALLATION 13. This probable communication station is located 5.5 miles ENE of Tashkent.

9. Gable-roofed building, 45 by 20 feet.
10. Hip-roofed building, 40 by 30 feet.
11. Gable-roofed building, 40 by 35 feet.
12. Gable-roofed building, 190 by 50 feet.
13. Gable-roofed building, 40 by 35 feet.
14. Gable-roofed building, 35 feet square.
15. Flat-roofed building, 20 by 15 feet.
16. Gable-roofed building, 70 by 45 feet.
17. Multistory flat-roofed building, 15 feet square.
18. Hip-roofed "U"-shaped building,

55 by 45 feet with two extensions 45 by 20 feet.

19. Hip-roofed "U"-shaped building, 55 by 45 feet with two extensions 45 by 20 feet.
20. Multistory hip-roofed building, 95 by 45 feet.
21. Flat-roofed building, 15 feet square.
22. Flat-roofed building, 15 feet square.
23. Flat-roofed building, 55 by 15 feet.
24. Fenced area 330 by 215 feet.

14. KRUG ANTENNA

A Krug antenna is located at 41-19-10N 69-25-50E, 7 miles east of Tashkent and 0.75 mile northwest of the Chirchik River.

15. DIRECTION-FINDING STATION

A Fix Six or Fix Eight high-frequency direction-finding station is at 41-19-40N 69-26-35E, 8 miles east-northeast of Tashkent and 0.5 mile northwest of the Chirchik River. It includes four or possibly six stick masts arranged in a 90-foot diameter circle around a centrally located building, and is surrounded by a circular wall or fence.

16. KRUG ANTENNA

A Krug antenna is located at 41-07N 69-24E, 13 miles southeast of Tashkent.

REPORTED INSTALLATIONS

The following are brief descriptions of eight electronic installations in Tashkent and vicinity reported in collateral sources but not identified on aerial photography. For convenient reference they are lettered from A through H and keyed to the detailed location map, Figure 2.

A. Small Radio Station (41-18N 69-17E)

Located to the rear of a two-story building facing Zhukov Street. Supports the Staff Headquarters for the Central Asia Military District. 6/ 8/

B. Radio Facility (41-18N 69-15E)

Located in the immediate vicinity of a military barracks and officer candidate school. 6/ 8/

C. Television Station (approximately 41-19N 69-15E)

Consists of a three-story studio building and a 590-foot self-supporting steel tower with three turnstile-type antennas. A turnstile-type antenna on top measures [] Station began operations on [] 9/ (Ground photograph taken in [] shows a tower and turnstile-type antenna.)

D. Probable Radio Facility (41-18N 69-16E)

Located at an MVD officers school. There are pole aerials on the roof of an impressive five-story brick and stucco or concrete building. 10/

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PIC/JR-1019/61

E. Radio Facility (41-18N 69-20E)

Located at the southeast corner of the Soviet Air Force barracks presumably associated with the Tashkent Airfield. Includes one 100-foot multiwire flattop antenna mounted between two 75 foot wooden masts and one probable tactical VHF radio-relay van with rectangular mesh

corner reflectors mounted on a 60-foot wooden mast. The reflectors are similar in size and appearance to those of the AN/TRC-8. 5/

F. Radio Station (near 41-15N 69-13E)

Includes one caged doublet antenna

150 feet long on two metal masts each 75 feet high. 5/

G. Radio Station (41-15N 69-12E)

Apparently serves the Soviet Army Guards. Includes four 30-foot masts and six 50-foot masts arranged in a circle supporting 30-foot cage antennas. 5/

H. Small Radio Station (41-23N 69-30E)

Located about one mile south of the Chirchik road. There is also an installation with approximately ten masts one quarter of a mile south of the road, but closer to Tashkent. 11/

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7. Ajzenberg, G. S. Antennas for Trunkline Communications, Moscow, 1948 (U)
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MAPS or CHARTS

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- ACIC. US Air Target Complex Chart, Series 25, Sheet 0328-9999-25A, Feb 53, scale: 1:25,000 (S)
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